LISTING OF THE CLAIMS

1-69. (Canceled).

70. (Previously Presented) An imager comprising:

an array of pixel sensor cells formed in a retrograde well on a substrate, the retrograde well being doped with a vertically graded dopant profile, wherein each pixel sensor cell has a photosensitive region and a photosensor formed at the photosensitive region;

a circuit formed in the substrate and electrically connected to the array for receiving and processing signals representing an image output by the array and for providing output data representing the image; and

a processor for receiving and processing data representing the image.

71. (Previously Presented) The imager of claim 70, wherein said array of pixel sensor cells and said processor are formed on a single substrate.

72. (Previously Presented) The imager of claim 70, wherein said array of pixel sensor cells is formed on a first substrate, and said processor is formed on a second substrate.

73. (Previously Presented) The imager of claim 70, wherein the retrograde well has a dopant concentration within the range of about 1×10^{16} to about 2×10^{18} atoms per cm^3 at the bottom of the retrograde well.

74. (Previously Presented) The imager of claim 73, wherein the retrograde well has a dopant concentration within the range of about 5×10^{14} to about 1×10^{17} atoms per cm^3 at the top of the retrograde well.

75. (Previously Presented) The imager of claim 70, wherein the retrograde well has a dopant concentration within the range of about 5×10^{16} to about 1×10^{18} atoms per cm^3 at the bottom of the retrograde well.

76. (Previously Presented) The imager of claim 75, wherein the retrograde well has a dopant concentration within the range of about 1×10^{15} to 5×10^{16} atoms per cm^3 at the top of the retrograde well.

77. (Previously Presented) The imager of claim 70, wherein the retrograde well has a dopant concentration of about 3×10^{17} atoms per cm^3 at the bottom of the retrograde well.

78. (Previously Presented) The imager of claim 77, wherein the retrograde well has a dopant concentration of about 5×10^{15} atoms per cm^3 at the top of the retrograde well.

79. (Previously Presented) The imager of claim 70, wherein the retrograde well is a first retrograde well, and said circuit is formed in a second retrograde well.

80-119. (Canceled).

120. (Previously Presented) A CMOS imager comprising:

an array of pixel sensor cells formed in a retrograde well in a substrate, the retrograde well being doped with a vertically graded dopant concentration, wherein each of said pixel sensor cells is separated by an isolation region that electrically isolates said pixel cells from each other, and each said pixel sensor cell comprises:

a photoconversion device;

a reset transistor;

a source follower transistor;

a row select transistor; and

a floating diffusion region in electrical communication with said photoconversion device and said source follower transistor.

121. (Previously Presented) The CMOS imager of claim 120 wherein the photoconversion device further comprises a transfer

transistor positioned to gate charges between said photoconversion device to said floating diffusion region.

122. (Previously Presented) The CMOS imager of claim 120 wherein the photoconversion device is a photogate.

123. (Previously Presented) The CMOS imager of claim 120 wherein the photoconversion device is a photodiode.

124. (Previously Presented) The CMOS imager of claim 120 wherein the photoconversion device is a photoconductor.

125. (Previously Presented) The CMOS imager of claim 120 wherein said retrograde well is provided to reflect signal carriers back to the photoconversion device.

126. (Previously Presented) The CMOS imager of claim 120 wherein said a vertically graded dopant concentration of the retrograde well is highest at a top of the well and lowest at a bottom of the well.

127. (Previously Presented) The CMOS imager of claim 120, wherein said vertically graded dopant concentration of the retrograde well is lowest at a top of the well and highest at a bottom of the well.

128. (Previously Presented) The CMOS imager of claim 127, wherein said vertically graded dopant concentration at the top of the retrograde well is within the range of about 5×10^{14} to 1×10^{17} atoms per cm^3 and the concentration at the bottom of the retrograde well is within the range of about 1×10^{16} to 2×10^{18} atoms per cm^3.

129. (Previously Presented) The CMOS imager of claim 127, wherein said vertically graded dopant concentration at the top of the retrograde well is within the range of about 1×10^{15} to 5×10^{16} atoms per cm^3 and the concentration at the bottom of the retrograde well is within the range of about 5×10^{16} to 1×10^{18} atoms per cm^3.

130. (Previously Presented) The CMOS imager of claim 127, wherein said vertically graded dopant concentration at the top of the retrograde well is about 5×10^{15} atoms per cm^3 and the concentration at the bottom of the retrograde well is about 3×10^{17} atoms per cm^3.